

## INTERNET DOCUMENT INFORMATION FORM

**A . Report Title:** Best Manufacturing Practices: Report of Survey  
Conducted at Naval Sea Logistics Center Detachment Portsmouth,  
Portsmouth, NH

**B. DATE Report Downloaded From the Internet:** 12/19/01

**C. Report's Point of Contact: (Name, Organization, Address, Office  
Symbol, & Ph #):** Best Manufacturing Practices  
Center of Excellence  
College Park, MD

**D. Currently Applicable Classification Level:** Unclassified

**E. Distribution Statement A:** Approved for Public Release

**F. The foregoing information was compiled and provided by:**  
DTIC-OCA, Initials: \_\_VM\_\_ Preparation Date 12/19/01

The foregoing information should exactly correspond to the Title, Report Number, and the Date on the accompanying report document. If there are mismatches, or other questions, contact the above OCA Representative for resolution.



REPORT OF SURVEY CONDUCTED AT

NAVAL SEA LOGISTICS CENTER  
DETACHMENT PORTSMOUTH  
PORTSMOUTH, NH

JULY 2000



## *Best Manufacturing Practices*

1998 Award Winner



INNOVATIONS IN AMERICAN GOVERNMENT

BEST MANUFACTURING PRACTICES CENTER OF EXCELLENCE  
College Park, Maryland  
[www.bmpcoe.org](http://www.bmpcoe.org)

20011220 056

AGI 02-03-0552

## Foreword

---



This report was produced by the Office of Naval Research's Best Manufacturing Practices (BMP) Program, a unique industry and government cooperative technology transfer effort that improves the competitiveness of America's industrial base both here and abroad. Our main goal at BMP is to increase the quality, reliability, and maintainability of goods produced by American firms. The primary objective toward this goal is simple: to identify best practices, document them, and then encourage industry and government to share information about them.

The BMP Program set out in 1985 to help businesses by identifying, researching, and promoting exceptional manufacturing practices, methods, and procedures in design, test, production, facilities, logistics, and management – all areas which are highlighted in the Department of Defense's 4245.7-M, *Transition from Development to Production* manual. By fostering the sharing of information across industry lines, BMP has become a resource in helping companies identify their weak areas and examine how other companies have improved similar situations. This sharing of ideas allows companies to learn from others' attempts and to avoid costly and time-consuming duplication.

BMP identifies and documents best practices by conducting in-depth, voluntary surveys such as this one at the Naval Sea Logistics Center, Detachment Portsmouth, Portsmouth, New Hampshire conducted during the week of July 10, 2000. Teams of BMP experts work hand-in-hand on-site with the company to examine existing practices, uncover best practices, and identify areas for even better practices.

The final survey report, which details the findings, is distributed electronically and in hard copy to thousands of representatives from industry, government, and academia throughout the U.S. and Canada – *so the knowledge can be shared*. BMP also distributes this information through several interactive services which include CD-ROMs and a World Wide Web Home Page located on the Internet at <http://www.bmpcoe.org>. The actual exchange of detailed data is between companies at their discretion.

The Naval Sea Logistics Center is a full-service office that develops and manages logistic tools, enabling government activities to utilize contractor performance information for improving product acquisitions and best value contract award decisions. The Detachment specializes in collecting, compiling, and providing data for use by the acquisition and technical communities in assessing supplier product quality and material past performance information. Among the best examples were the Naval Sea Logistics Center's accomplishments in Product Data Reporting and Evaluation Program; Cumbersome Work Practices Working Panel; and Red/Yellow/Green Program.

The Best Manufacturing Practices Program is committed to strengthening the U.S. industrial base. Survey findings in reports such as this one on the Naval Sea Logistics Center expand BMP's contribution toward its goal of a stronger, more competitive, globally-minded, and environmentally-conscious American industrial program.

I encourage your participation and use of this unique resource.

A handwritten signature in cursive script, appearing to read "Anne Marie T. SuPrise".

Anne Marie T. SuPrise, Ph.D.  
Acting Director, Best Manufacturing Practices

# Contents

Naval Sea Logistics Center, Detachment Portsmouth

---

## 1. Report Summary

<i>Background</i> .....	1
<i>Point of Contact</i> .....	1

---

## 2. Best Practices

### *Logistics*

Contractor Performance Assessment Reporting System .....	2
Level I/SubSafe Verification Program .....	3
Product Data Reporting and Evaluation Program .....	3
Supplier Audit Program .....	4

### *Management*

Contractor Evaluation System .....	5
Cumbersome Work Practices Working Panel .....	5
Navy/Prime Contractor Partnership Program .....	6
Pre-Award Survey System .....	6
Red/Yellow/Green Program .....	7

---

## 3. Information

### *Logistics*

Computer Based Training .....	9
Past Performance Automated Information System.....	9
Help Desk/Call Center.....	10

---

# Figures

Naval Sea Logistics Center, Detachment Portsmouth

---

2-1	Contractor Performance Assessment Reporting System's Process Flow.....	2
3-1	Past Performance Automated Information System's Process Flow.....	10

---

<b>APPENDIX A - Table of Acronyms .....</b>	<b>A-1</b>
<b>APPENDIX B - BMP Survey Team.....</b>	<b>B-1</b>
<b>APPENDIX C - Critical Path Templates and BMP Templates.....</b>	<b>C-1</b>
<b>APPENDIX D - BMPnet and the Program Manager's WorkStation .....</b>	<b>D-1</b>
<b>APPENDIX E - Best Manufacturing Practices Satellite Centers .....</b>	<b>E-1</b>
<b>APPENDIX F - Navy Manufacturing Technology Centers of Excellence .....</b>	<b>F-1</b>
<b>APPENDIX G - Completed Surveys .....</b>	<b>G-1</b>

---

# Section 1

## Report Summary

---

### Background

The Naval Sea Systems Command (NAVSEA), just outside of Washington, D.C., is the U.S. Navy's central activity for designing, engineering, integrating, building, and procuring U.S. naval ships and shipboard weapons and combat systems. Part of the NAVSEA team is the Naval Sea Logistics Center (NSLC), which consists of four divisions and seven smaller on-site offices located throughout the United States. NSLC specializes in providing integrated logistics, engineering, and information technology expertise to meet the needs of its worldwide customer base, and features hands-on management of logistics business processes along with customized consulting services for developing and implementing logistics information, technology-enabling tools. The BMP survey focused on Detachment Portsmouth, the NSLC division in Portsmouth, New Hampshire.

NSLC, Detachment Portsmouth is located on the Piscataqua River across from the Portsmouth Naval Shipyard in Kittery, Maine. The Detachment has a close relationship with the Shipyard whose primary mission is the overhaul, repair, modernization, and refueling of Los Angeles-class nuclear powered submarines. A key aspect of the relationship involves Level I material detail inspections, as every submarine must be certified before it can be put into service. NSLC, Detachment Portsmouth originally started in the 1960s at the Kittery site, before expanding and moving across the river to New Hampshire. The Detachment employs 24 personnel and achieved \$3 million in revenues for 2000.

NSLC, Detachment Portsmouth is a full-service office that develops and manages logistics tools, enabling government activities to utilize contractor performance information for improving product acquisitions and best value contract award deci-

sions. The Detachment specializes in collecting, compiling, and providing data for use by the acquisition and technical communities in assessing supplier product and services past performance. Among the best practices documented were NSLC, Detachment Portsmouth's Product Data Reporting and Evaluation Program; Cumbersome Work Practices Working Panel; and Red/Yellow/Green Program. These tools greatly enhance the contracting process by centralizing past performance data, reducing audit duplications, and allowing for best buy/best value acquisitions.

NSLC, Detachment Portsmouth's mission is to analyze the quality of material and services provided to the Navy, assess the past performance of contractors supplying these commodities, and recommend actions which result in improved products and best value contract award decisions. By excelling in its mission, the Detachment has become a first-class technical resource for engineering, quality, and logistics organizations. The BMP survey team considers the practices in this report to be among the best in industry and government.

### Point of Contact:

For further information on items in this report, please contact:

Mr. Duncan MacDonald  
Department of the Navy  
Naval Sea Logistics Center  
Detachment Portsmouth  
80 Daniel Street, Suite 400  
Portsmouth, New Hampshire 03801  
Phone: (603) 431-9460 x462  
Fax: (603) 431-9464  
E-mail: [macdonalddl@navsea.navy.mil](mailto:macdonalddl@navsea.navy.mil)  
Web: <http://www.nslcptsmh.navsea.navy.mil>

## Section 2

### Best Practices

#### Logistics

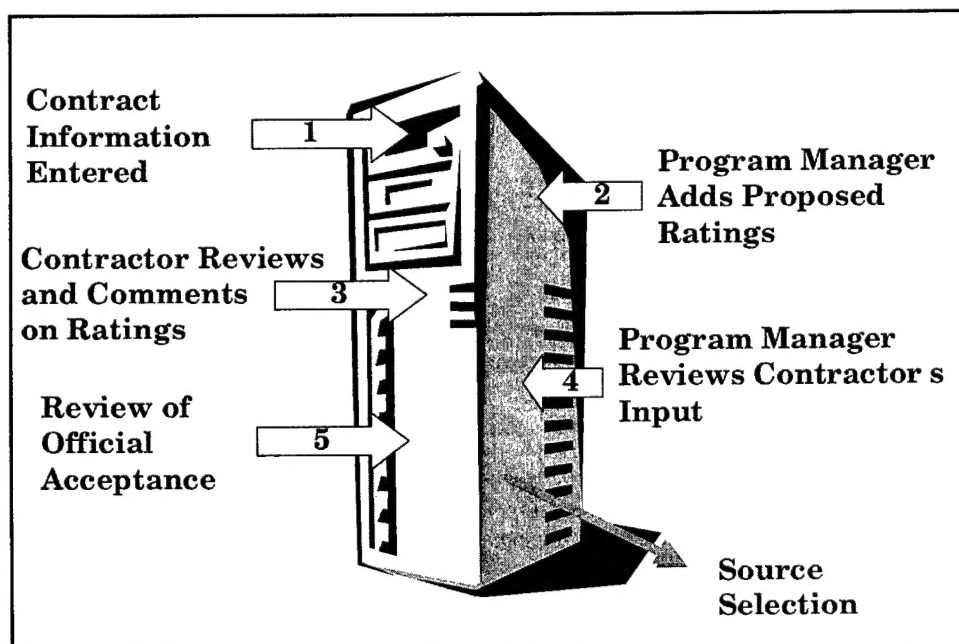
##### Contractor Performance Assessment Reporting System

*In 1998, the Naval Sea Logistics Center, Detachment Portsmouth developed the Contractor Performance Assessment Reporting System, a fully automated, paperless, web-enabled system for the collection and maintenance of past performance information. This system is used in award decisions for competitive solicitations.*

Previously, the Department of Defense and the Assistant Secretary of the Navy for Research, Development, and Acquisition lacked a documented, paperless automated system for tracking the past performance of contractors and government agencies. In 1997, the Naval Sea Logistics Center (NSLC), Detachment Portsmouth began its innovative approach to performance reporting with the start of programming, followed by the deployment of a data collection system and source selection/retrieval system in 1998. The result was the Contractor Performance Assessment Reporting System, a fully automated, paperless, web-enabled system for the collection and maintenance of past performance information.

The Contractor Performance Assessment Reporting System is used in award decisions for competitive solicitations. The key point of this system is its web-

based interface which facilitates the secure collection, retrieval, and assessment of contractors' past performance data. The Contractor Performance Assessment Reporting System enables users to review this information through a report-card type listing, and provides multiple access levels, retrieval query capability, and on-line help. Users gain authorized entry into the system through a controlled secure access. The Contractor Performance Assessment Reporting System's Process Flow is shown in Figure 2-1. Step 1 involves entering the contract information into the system. Step 2 is where the Program Manager adds the proposed ratings based on Technical/Quality of Product, Product Performance, Systems and Software Engineering, Logistics Support, Product Assurance, Schedule, Cost, and Management. In Step 3, the Contractor receives e-mail notification and has 30 days to review the proposed ratings and provide comments. Step 4 is where the Contractor's input is reviewed and modified at the discretion of the Program Manager. In cases of modification, the original ratings



**Figure 2-1. Contractor Performance Assessment Reporting System's Process Flow**

are also archived. Step 5 is the Review of Official Acceptance. If the Program Manager and Contractor agree on the initial ratings, this step becomes optional. The results are available for use by all Services through the Contractor Performance Assessment Reporting System's source selection process.

Funded by the Assistant Secretary of the Navy for Research, Development, and Acquisition, the Contractor Performance Assessment Reporting System has been used throughout the Department of the Navy since 1998. To date, 1,900 entries have been completed with 1,000 more in process. NSLC, Detachment Portsmouth offers the only Navy performance assessment reporting system that is fully automated, paperless, web-enabled, and available to the acquisition community. Information is shared across government and industry. Since the availability of the Contractor Performance Assessment Reporting System, performance has improved under current contracts. Additionally in a 1999 survey, 80% of source selection officials (e.g., Department of the Navy, U.S. Army, U.S. Air Force) responded that they were able to retrieve records on specified contractors, compared to a very low percentage prior to the system's implementation. The Department of the Navy Guide now mandates the use of the Contractor Performance Assessment Reporting System registration, with information being available on-line in real time for all contracts.

## Level I/SubSafe Verification Program

*In 1994, the Naval Sea Logistics Center, Detachment Portsmouth developed the Level I/SubSafe Verification Program as a single, windows-based inspection information system. The program provides users with a paperless storage and retrieval system to verify part inspection information for Level I material prior to shipboard installation.*

Previously, the Department of the Navy lacked a documented, paperless automated system for critical application parts. In 1994, the Naval Sea Logistics Center (NSLC), Detachment Portsmouth developed the Level I/SubSafe Verification Program as a single, windows-based inspection information system. This program provides users with a paperless storage and retrieval system to verify part inspection information for Level I material prior to shipboard installation.

The Level I/SubSafe Verification Program features a windows-based interface that facilitates the secure storage and retrieval of critical part inspection information. Upon receipt of critical parts, inspections (e.g., chemical, material properties, dimensional) are performed and documented on paper as well as in the paperless Level I/SubSafe Verification Program. Pedigree information is then available to the end user (e.g., shipyards, naval bases, Fleet activities) to independently access inspection results, and verify that material is certified and ready for shipboard installation. Level I/SubSafe Verification Program software is distributed to authorized users, allowing independent verification of inspection data by the end user. As a result, the number of shore and Fleet activity technical assistance calls were reduced from 6,000 in 1994/1995 to 2,400 in 1999 with a 50% reduction in required staff.

Funded by the Assistant Secretary of the Navy for Research, Development, and Acquisition, the Level I/SubSafe Verification Program has been deployed and will be expanded with the integration of a web-enabled application by the end of 2000. End users will be able to obtain inspection information anywhere in the world via web access. NSLC, Detachment Portsmouth offers the only paperless and automated part inspection record storage and retrieval system to the shore and Fleet communities. Level I/SubSafe Verification Program information is also being shared across government and industry.

## Product Data Reporting and Evaluation Program

*The Naval Sea Logistics Center, Detachment Portsmouth developed the Product Data Reporting and Evaluation Program as an automated information system designed to track quality and delivery performance on material and services procured by the U.S. Navy. Subsets of this program include the Contractor Evaluation System; the Red/Yellow/Green Program; and the Level I/SubSafe Verification Program.*

In the past, each Navy Systems Command maintained its own independent database on contract performance data. This approach created redundancy and hindered the ability to share information. The Naval Sea Logistics Center (NSLC), Detachment Portsmouth developed the Product Data Reporting and Evaluation Program. This



---

program is an automated information system designed to track quality and delivery performance on material and services procured by the U.S. Navy. Subsets of this program include the Contractor Evaluation System; the Red/Yellow/Green Program; and the Level I/SubSafe Verification Program.

The Product Data Reporting and Evaluation Program is a centralized Navy system used to collect contractor quality, delivery, and performance data from the Navy, Marine Corps, Defense Logistics Agency, Defense Contracts Management Agency, and Prime Navy Contractor sources. Data is entered on-line from numerous sources, such as Product Quality Deficiency Reports, Material Inspection Records, Defense Logistics Agency Test Data, Corrective Action Requests, Contract Delivery Data, Surveys of Contractor Facilities, First Article Test and Production Lot Testing, Prime Contractor Data, Government and Industry Data Exchange Program Alerts, and Fraud/Malpractice Information. Users can access the Product Data Reporting and Evaluation Program via Newnet, the Internet, or a modem. This program provides users with a wider perspective of a contractor's performance because information is gathered from many agencies rather than just one activity or Systems Command. The application offers a wide selection of standard, management, and graphical reports. In addition, a powerful Ad-Hoc feature allows users to customize their own reports. The goal of the Product Data Reporting and Evaluation Program is to improve component quality and system readiness through the review of contractor past performance data, and to apply that data in the source selection process. The application is also used by the Naval Criminal Investigative Service to investigate product substitution fraud.

Since being implemented, the Product Data Reporting and Evaluation Program has produced many cost savings by improving contract performance (e.g., reducing defects, improving on-time delivery) and eliminating the need for other activities to maintain similar databases. For the Navy, its material defect rate has improved from 12% to 6% when using the Product Data Reporting and Evaluation Program's Red/Yellow/Green application. For the U.S. Marine Corps and the Defense Contracts Management Agency, a cost avoidance has been achieved by switching to the Product Data Reporting and Evaluation Program rather than repairing/upgrading their data collection systems. Data from these systems was recovered and entered into the

Product Data Reporting and Evaluation Program database. In 1999, NSLC, Detachment Portsmouth noted a 12% increase in database users. Currently, an Air Force Memorandum of Agreement is in process to deliver Air Force Product Quality Deficiency Report and delivery data, and return Red/Yellow/Green ratings. A Product Data Reporting and Evaluation Program report is also prepared annually to provide feedback on product and supplier performance trends. Additional information on the Product Data Reporting and Evaluation Program can be found in the NAVSO P-3683A manual at <http://www.nslcptsmh.navsea.navy.mil/pdrep.htm>.

### Supplier Audit Program

*In 1999, the Naval Sea Logistics Center, Detachment Portsmouth developed the Supplier Audit Program as a way of reducing redundant process audits and improving the oversight of critical supplier process controls. The program provides consistency for audits; fosters early identification of systemic material problems due to process control; creates a feedback loop so all parties are aware of the results; and reduces the cost of the oversight process.*

In the past, private and public shipyards did not always provide sufficient oversight of critical suppliers. This situation came about from a trend in which audits tended to focus on poor suppliers. As a result, these suppliers typically endured multiple audits of the same process by different agencies. In cases of unsatisfactory audits, poor communication methods prevented naval activities and prime contractors from receiving timely notification. In 1999, the Naval Sea Logistics Center (NSLC), Detachment Portsmouth developed the Supplier Audit Program as a way of reducing redundant process audits and improving the oversight of critical supplier process controls. The Supplier Audit Program is a joint government/industry effort lead by Electric Boat, Newport News Shipbuilding, NAVSEA System Command Activities, and the Defense Contracts Management Agency.

As a result of the Supplier Audit Program, supplier audits now focus on process control. A set of 24 Special Process Audit Guidelines were developed to assist auditors. Each guideline covers a process area and provides a consolidated list of questions. For critical suppliers, naval activities and prime contractors only audit for those processes not com-

pleted within the last two years; for non-critical suppliers, it is three years. Summary audits are submitted to the Supplier Audit Program through a web-enabled Audit Summary Sheet. In cases of unsatisfactory audits, naval activities and prime contractors receive notification via e-mail. Users can also view the Supplier Audit Program's summary audits. In some cases, this approach may eliminate the need for another survey. Naval activities can access all summary audits, while prime contractors can only access their own audits or those of companies with which they have agreements. Vendors also can access their summary audits, enabling all parties to be aware of the information.

Since being implemented, the Supplier Audit Program has increased government/prime vendor awareness while reducing the number of audits that individual suppliers must undergo when working on a government contract. The program also provides consistency for audits; fosters early identification of systemic material problems due to process control; creates a feedback loop so all parties are aware of the results; and reduces the cost of the oversight process. By sharing audit responsibilities, Navy activities and prime contractors experience collective cost savings.

## **Management**

### **Contractor Evaluation System**

*The Naval Sea Logistics Center, Detachment Portsmouth developed the Contractor Evaluation System as an easier way to evaluate potential contractors. The system is a standardized database used to collect and process past history on contractor performance by commodity, via the Federal Supply Classification.*

The Naval Sea Logistics Center (NSLC), Detachment Portsmouth developed the Contractor Evaluation System as an easier way to evaluate potential contractors. The system includes inputs from many sources including Material Inspection Records, Product Quality Deficiency Reports, Surveys, Test Reports, and Special Quality Data.

The Contractor Evaluation System is a standardized database used to collect and process past history on contractor performance by commodity, via the Federal Supply Classification. Users such as quality assurance and technical personnel can re-

trieve a profile on each contractor's performance. The Contractor Evaluation System can also generate summary and detail reports. Data on subcontractors is provided by the prime contractor through NSLC, Detachment Portsmouth's Navy/Prime Contractor Partnership Program.

The contractor quality history is used to ensure that contracts are not awarded to contractors with a previous history of providing unsatisfactory products. The history also helps determine what actions would be necessary to assure product quality if the contract were awarded, as well as what additional expenses should be included in the potential contractor's bid to account for any oversight costs.

### **Cumbersome Work Practices Working Panel**

*Started in 1995, the Cumbersome Work Practices Working Panel has grown to 263 Working Teams, each addressing a unique set of difficult-to-solve work practices within the Navy. Using inspection data from the Product Data Reporting and Evaluation Program, the Working Teams make informed decisions concerning the reduction of mandatory inspections by the Navy and, at the same time, maintaining or increasing inspection requirements on poor performing military specifications and stock numbers.*

The Cumbersome Work Practices Working Panel initiative is chaired by NAVSEA 05N and relies on the Product Data Reporting and Evaluation Program database to analyze and trend military specification and stock number quality performance. Using inspection data from the Product Data Reporting and Evaluation Program, the Cumbersome Work Practices Working Panel makes informed decisions concerning the reduction of mandatory inspections by the Navy and, at the same time, maintains or increases inspection requirements on poor performing military specifications and stock numbers.

Started in 1995, the overall program has grown to 263 Working Teams, each addressing a unique set of difficult-to-solve work practices within the Navy. The Working Teams draw information from resources (e.g., Navy specialist, subject matter experts, reports, databases) that best match the work practices being studied. Presently, the Naval Sea Logistics Center (NSLC), Detachment Portsmouth participates on three Working Teams which employ

---

their expertise as well as the Product Data Reporting and Evaluation Program data to make effective process changes.

One Working Team involving NSLC, Detachment Portsmouth was instrumental in improving the work processes for delivering quality material to the Fleet. The task involved using past performance Product Data Reporting and Evaluation Program data to make effective process changes. The Working Team analyzed Material Inspection Records and Product Quality Deficiency Reports submitted by the shipyards; targeted areas for improvement; and identified deficient material. Additionally, NSLC, Detachment Portsmouth generated management reports that provided objective evidence of defect rates. The research pointed toward Controlled Industrial Material items. As a result, the Working Team improved Controlled Industrial Material bulk metal specifications and fastener specifications. Over a five-year period, the number of applicable Controlled Industrial Material specifications decreased from 79 to seven. In turn, the Navy realized cost savings in terms of turn-in items and specific corrective actions for improving product performance at all naval installations.

The Product Data Reporting and Evaluation Program database proved to be a valuable tool in producing reliable data for true problem identification and analysis. Other completed actions involving this program included marking problems with ASTM pipe; analysis of MIL-S-1222 material fasteners; identification of chemical and dimensional defect problems with MIL-F-1183 for bronze fittings; and (prior to 1990) disposal of material due to high lead content.

### Navy/Prime Contractor Partnership Program

*In 1996, the Naval Sea Logistics Center, Detachment Portsmouth implemented the Navy/Prime Contractor Partnership Program. Each partnership is a formal agreement between the Navy and a prime contractor to share contractor performance data. The additional data enhances the procurement process by providing information on vendors that was previously unavailable.*

With the declining number of sources for contractor performance data (due to Base Realignment and Closure and the decreased level of procurement), it

was recognized that new sources of data needed to be developed. In 1996, the Naval Sea Logistics Center (NSLC), Detachment Portsmouth implemented the Navy/Prime Contractor Partnership Program.

Each partnership is a formal agreement between the Navy and a prime contractor to share contractor performance data. NSLC, Detachment Portsmouth approaches potential partners and briefs them about Navy information which could help them in their subcontractor selection process. If interested, NSLC, Detachment Portsmouth then reviews the prime contractor's records to determine if they will be useful to the program. All records are accepted in their existing format. A Memorandum of Agreement is then signed with the prime contractor, whereby each agrees to share information with the Navy. The current participants of the Navy/Prime Contractor Partnership Program include Electric Boat, Bath Iron Works, Newport News Shipbuilding, Boeing (St. Louis), and the Coordinating Agency for Supplier Evaluation. The participants have provided NSLC, Detachment Portsmouth with performance data on 2,154 contractors. Of these, 878 had no prior listing in the Product Data Reporting and Evaluation Program database.

Through the Navy/Prime Contractor Partnership Program, participants furnish and obtain valuable contractor performance data. The additional data enhances the procurement process by providing information on vendors that was previously unavailable. As a result, costs are being lowered and the quality of the material ordered is improving. In many cases, surveys of the contractor can be eliminated based on the information in the Product Data Reporting and Evaluation Program database. The cost savings is approximately \$2,500 per survey.

### Pre-Award Survey System

*The Naval Sea Logistics Center, Detachment Portsmouth developed the Pre-Award Survey System as an automated process used to obtain pre-award survey information on all contractors surveyed by the Defense Contracts Management Agency. The system improved the method for collecting the information from the Services, as well as increased the efficiencies for logging into the Product Data Reporting and Evaluation Program database.*

In the past, field activities would submit incomplete or unreliable pre-award survey information to

---

the Product Data Reporting and Evaluation Program. This situation made it difficult for the Naval Sea Logistics Center (NSLC), Detachment Portsmouth to maintain a useful database for its customers. As a result, the Product Data Reporting and Evaluation Program customers began conducting their own pre-surveys, often duplicating ones done by another naval activity. NSLC, Detachment Portsmouth resolved the situation by developing the Pre-Award Survey System.

The Pre-Award Survey System is an automated process used to obtain pre-award survey information on all contractors surveyed by the Defense Contracts Management Agency. NSLC, Detachment Portsmouth also improved the method for collecting the information from the Services as well as increased the efficiencies for logging into the Product Data Reporting and Evaluation Program database. Information is submitted by the Defense Contracts Management Agency to NSLC, Detachment Portsmouth through weekly electronic transfers, and made available to the Product Data Reporting and Evaluation Program customers for use in vendor evaluations. Pre-award surveys are now geared toward vendors that have never worked with the government, so that their ability to perform a proposed contract can be determined. Technical, production, quality, and financial data are collected by the Defense Contracts Management Agency and forwarded to the awarding Navy Field Activity for its own use. Copies of this information are forwarded to the Defense Contracts Management Agency and entered into the Product Data Reporting and Evaluation Program database for others to use.

The Pre-Award Survey System enables NSLC, Detachment Portsmouth to maintain an accurate Product Data Reporting and Evaluation Program database, and eliminates the need for field activities to provide pre-award survey information. Since implementing this streamlined system, entries have increased from one pre-award survey report per hour to approximately 30 to 40 reports per hour. Additionally, pre-award survey information captured by the Product Data Reporting and Evaluation Program has increased from 104 surveys in 1997 to 1,588 surveys in 1999. More contractor history is now available for developing the Red/Yellow/Green reports and contractor profiles.

## Red/Yellow/Green Program

*The Red/Yellow/Green Program is a source selection tool designed to reduce the risk of receiving nonconforming products and late deliveries. The program classifies the degree of risk by assigning a color to a contractor's historical product quality and delivery performance in individual Federal Supply Classifications. Red is high risk, yellow is moderate risk, and green is low risk.*

In the past, the Navy's Vendor Data Analysis Report was prepared manually by the Quality Assurance Department. The report, primarily for internal use, listed the top 20 to 30 worst contractors. The process was cumbersome and required bi-yearly reviews to generate the hard copy reports. At best, the reviews were subjective and sometimes vendors were overlooked. Not only was this report narrow in scope, but it offered very little value to the procurement process. In 1992, the Navy implemented the Red/Yellow/Green Program and assigned the Naval Sea Logistics Center (NSLC), Detachment Portsmouth as the program administrator. The following year, a Red/Yellow/Green Continuous Improvement Council was established and by 1996, delivery classifications were added to the process.

The Red/Yellow/Green Program is a source selection tool designed to help the Contracting Officer reduce the risk of receiving nonconforming products and late deliveries. The program classifies the degree of risk by assigning a color to a contractor's historical product quality and delivery performance in individual Federal Supply Classifications. Red is high risk, yellow is moderate risk, and green is low risk. Equally important, the Red/Yellow/Green Program provides procedures and an automated system for incorporating these classifications into source selection. The program meets Navy requirements to include an evaluation of the offeror's past quality and delivery performance in the award decision process; however, it does *not* eliminate the need to meet the standards in the Federal Acquisition Regulations.

The Red/Yellow/Green Program also employs the Technical Evaluation Adjustment and the Greatest Value/Best Buy methodologies in source selection to determine the best value for the Navy. The Technical Evaluation Adjustment calculates the government's cost of additional quality assurance

---

and procurement actions needed to reduce the risk of receiving nonconforming products and late delivery. When added to a Red or Yellow offeror's price, an adjustment may displace a low offeror in favor of another with a better product quality and delivery history. The Greatest Value/Best Buy plan includes price and a Red/Yellow/Green classification as part of the evaluation factors.

Once a month, quality and delivery historical records are evaluated, and predefined criteria is used to develop Red/Yellow/Green classifications for each contractor's Federal Supply Classification. In cases of insufficient data, a neutral classification is assigned. Contractor performance data is obtained from the Product Data Reporting and Evaluation Program database. Contractors are provided electronic access to and written notification of their current classification(s). For Red or Yellow classification, the notification includes a summary of the

data used to develop the classification. For Green, only a status sheet is sent. Contractors have three weeks to challenge the data before it becomes official. As a microcomputer application, the Red/Yellow/Green Program runs on an IBM-compatible computer that uses a five-megabyte hard drive, printer, and modem. A web-based access is coming soon.

The Red/Yellow/Green Program has proven to be a valuable and accurate tool in the procurement process. Less than 0.5% of classifications have changed as a result of challenges from contractors. The program eliminates the low bidder syndrome and has stood up to legal challenges. The reject rates of procurements have decreased from 16.8% in 1989 to 5.5% in 2000, which translates to tremendous cost avoidance through reducing rework and re-procurements.



## Section 3

### Information

---

#### Logistics

##### Computer Based Training

*In August 1999, the Naval Sea Logistics Center, Detachment Portsmouth developed and implemented Computer Based Training, a windows-based and web-enabled training system for use with the Contractor Performance Assessment Reporting System. Computer Based Training is a fully automated system that can be operated via CD-ROM or the Internet.*

Previously, the Contractor Performance Assessment Reporting System training involved a traditional classroom setting to train personnel in operating the Naval Sea Logistics Center (NSLC), Detachment Portsmouth's applications. This approach was paper based and, therefore, inaccessible from off-site locations. In August 1999, NSLC, Detachment Portsmouth developed and implemented Computer Based Training, a windows-based and web-enabled training system for use with the Contractor Performance Assessment Reporting System. This fully automated system can be operated via CD-ROM or the Internet.

Computer Based Training features web- and windows-based interfaces that facilitate training for NSLC, Detachment Portsmouth's applications for use throughout the Department of Defense and industry. Contractor Performance Assessment Reporting System training now involves exam modules and easy accessibility from off-site locations. Users can review information regarding the Contractor Performance Assessment Reporting System, and check subject comprehension on-line. The goal is also to train the trainers.

Funded by the Assistant Secretary of the Navy for Research, Development, and Acquisition, Computer Based Training has been used throughout the Department of the Navy since 1999. The system provides an estimated \$200,000 in cost avoidance. Savings result from implementing web-accessible data and CD-ROM paperless information, and reducing travel expenses and the number of instructors. NSLC, Detachment Portsmouth is expanding

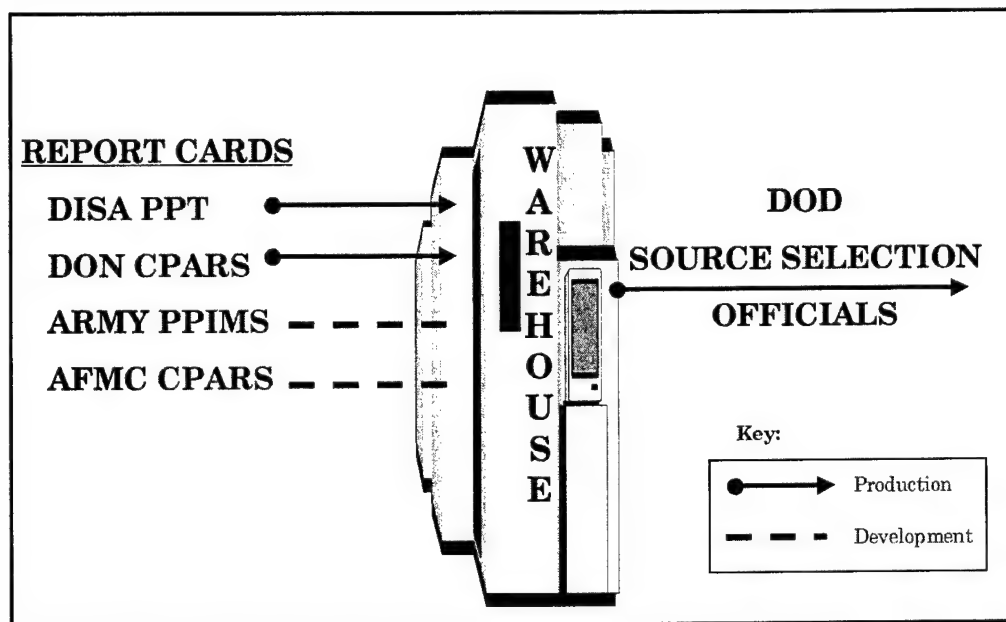
Computer Based Training to include the Product Data Reporting and Evaluation Program and Level I/SubSafe Verification Program training.

##### Past Performance Automated Information System

*The Naval Sea Logistics Center, Detachment Portsmouth developed the web-enabled Past Performance Automated Information System as a single-source storage and retrieval site available for government agencies. This system provides Department of Defense source selection officials with access to report cards from several agencies rather than data solely from their own agency.*

Previously, government agencies (e.g., Army, Air Force, Navy, Defense Information Systems Agency) lacked a common, documented, paperless automated system for storing and retrieving past performance data on contractors and other agencies. The Naval Sea Logistics Center (NSLC), Detachment Portsmouth's innovative approach began in early 2000 with the assumption of a program under development to store and retrieve past performance report cards from all Department of Defense services. The result was the web-enabled Past Performance Automated Information System, a single-source storage and retrieval site available to government agencies.

The Past Performance Automated Information System features a windows-based interface that facilitates the secure storage and retrieval of contractor past performance data provided by various government agencies. This system provides the Department of Defense source selection officials with access to report cards from several agencies rather than data solely from their own agency. Government users are authorized entry to the Past Performance Automated Information System through controlled secure access, while contractors are limited to their own data or strictly authorized information via firewalls. The Past Performance Automated Information System's Process Flow is shown in Figure 3-1. Customer assistance (e.g., initial set-up, retrieval of information) is available through a help desk.



**Figure 3-1. Past Performance Automated Information System's Process Flow**

The Past Performance Automated Information System has initially been deployed with the integration of report cards from the Department of the Navy's Contractor Performance Assessment Reporting System and the involvement of the Defense Information Systems Agency's Past Performance Tool. This system will be expanded in August 2000 with the addition of the Army's Past Performance Information Management System and the Air Force Materiel Command's Contractor Performance Assessment Reporting System report cards. A passive system will also be developed in FY01, designed for small purchase contractor classification, and will use existing data to evaluate/rate contractors. NSLC, Detachment Portsmouth offers a performance assessment storage and retrieval system to the acquisition community that is paperless, automated, and shares information across government and industry.

### Help Desk/Call Center

*The Help Desk/Call Center assists callers either by answering their question directly or by entering the information into the Product Data Reporting and Evaluation Program database for action by an appropriate manager. Calls are also tracked to ensure they are being addressed and that the customer received a response in a timely and effective manner.*

In the past, help desk activity at the Naval Sea Logistics Center (NSLC), Detachment Portsmouth was extremely labor intensive, disorganized, and stressful for personnel who handled the calls. The approach used manually prepared responses, paper-based tracking, and labor intensive

reporting capabilities. As a result, responses were often delayed, customer loyalty started to decline, and the credibility of the help desk was being questioned. To resolve this situation, NSLC, Detachment Portsmouth developed the Help Desk/Call Center.

The Help Desk/Call Center assists callers either by answering their question directly or by entering the information into the Product Data Reporting and Evaluation Program database for appropriate action. Incoming calls or messages are reviewed and, if possible, receive an immediate response by the Help Desk/Call Center personnel. In cases where a technical response or programming change is needed, the Help Desk/Call Center personnel enters the request/problem into the Product Data Reporting and Evaluation Program database. The information is then forwarded to the appropriate manager for a response. Calls are tracked by the Product Data Reporting and Evaluation Program to ensure they are being addressed and that the customer received a response in a timely and effective manner.

Over the past several years, NSLC, Detachment Portsmouth has become an increasingly valuable resource in the logistics community. The Product Data Reporting and Evaluation Program database as well as other information technology programs at NSLC, Detachment Portsmouth have proven to be excellent resources for improving best value procure-

---

ments of goods and materials for the Department of Defense. As a result, the workload has steadily increased. Over the past 25 months, the Help Desk/Call Center activity has increased from ten calls per month to 150 calls per month. NSLC, Detachment Portsmouth expects these numbers to further increase when its web activity comes on-line, which will necessitate the automation of the help desk function.

NSLC, Detachment Portsmouth places special emphasis on its customers and the automation of its processes. The Help Desk/Call Center operates with a computer-based workstation and a prescribed set of procedures. Personnel receive training that focuses on responsibilities to the customer; operation of the computer workstation; execution of the process procedures; and complexities of the technical staff. The Help Desk/Call Center can now be handled efficiently by one person. A typical day

starts with checking voice mail and e-mail for new help desk calls; running reports on open calls; and performing status reviews on open calls and determining how to address them immediately. Problems are resolved by phone or e-mail. The caller can also be referred to network specialists and/or developers who can respond by phone, e-mail, or in person. Activities are logged into the Product Data Reporting and Evaluation Program database and tracked until completion. Surveys are taken periodically to categorize the type and frequency of calls to the Help Desk/Call Center. To circumvent increased calls, this information is then used to send out e-mails and bulletins to better inform users who are deficient in these categories. The implementation of the Help Desk/Call Center enabled NSLC, Detachment Portsmouth to improve help desk functionality, minimize costs, provide extensive service and support, and prepare for future technology.



## Appendix A

### *Table of Acronyms*

---

No acronyms were used in this report.

## Appendix B

### ***BMP Survey Team***

---

<b>Team Member</b>	<b>Activity</b>	<b>Function</b>
<b>Larry Robertson</b> (812) 854-5336	<b>Crane Division</b> Naval Surface Warfare Center Crane, IN	<b>Team Chairman</b>
<b>Cheri Spencer</b> (301) 403-8100	<b>BMP Center of Excellence</b> College Park, MD	<b>Technical Writer</b>

#### **Team**

<b>Larry Halbig</b> (317) 891-9901	<b>BMP Field Office</b> Indianapolis, IN	<b>Team Leader</b>
<b>Nick Tambakis</b> (301) 403-8100	<b>BMP Center of Excellence</b> College Park, MD	
<b>Todd Brandt</b> (909) 273-5552	<b>Naval Warfare Assessment Station</b> Corona, CA	

---

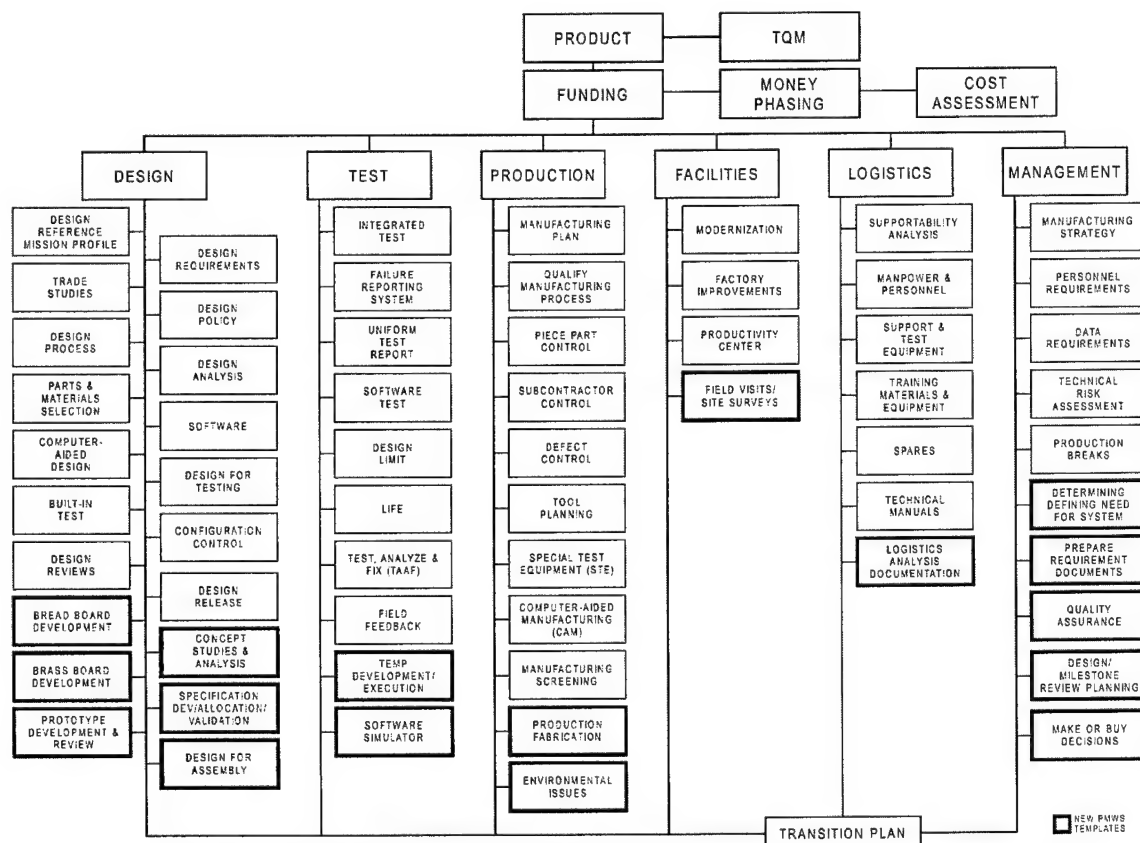
# Appendix C

## Critical Path Templates and BMP Templates

This survey was structured around and concentrated on the functional areas of design, test, production, facilities, logistics, and management as presented in the Department of Defense 4245.7-M, *Transition from Development to Production* document. This publication defines the proper tools—or templates—that constitute the critical path for a successful material acquisition program. It describes techniques for improving the acquisition process by addressing it as an *industrial* process that focuses on the product's design, test, and production phases which are interrelated and interdependent disciplines.

The BMP program has continued to build on this knowledge base by developing 17 new templates that complement the existing DOD 4245.7-M templates. These BMP templates address new or emerging technologies and processes.

### “CRITICAL PATH TEMPLATES FOR TRANSITION FROM DEVELOPMENT TO PRODUCTION”



## Appendix D

### *The Program Manager's WorkStation*

---

The Program Manager's WorkStation (PMWS) is an electronic suite of tools designed to provide timely acquisition and engineering information to the user. The main components of PMWS are KnowHow; the Technical Risk Identification and Mitigation System (TRIMS); and the BMP Database. These tools complement one another and provide users with the *knowledge, insight, and experience* to make informed decisions through all phases of product development, production, and beyond.

**KnowHow** provides knowledge as an electronic library of technical reference handbooks, guidelines, and acquisition publications which covers a variety of engineering topics including the DOD 5000 series. The electronic collection consists of expert systems and simple digital books. In expert systems, KnowHow prompts the user to answer a series of questions to determine where the user is within a program's development. Recommendations are provided based on the book being used. In simple digital books, KnowHow leads the user through the process via an electronic table of contents to determine which books in the library will be the most helpful. The program also features a fuzzy logic text search capability so users can locate specific information by typing in keywords. KnowHow can reduce document search times by up to 95%.

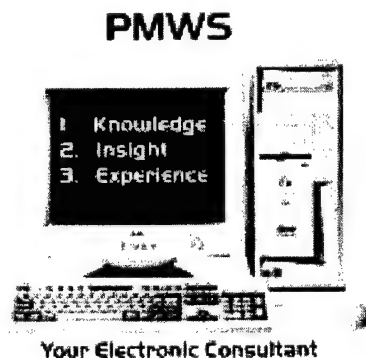
**TRIMS** provides insight as a knowledge-based tool that measures technical risk management rather than cost and schedule. Cost and schedule overruns are downstream indicators of technical problems. Programs generally have had process problems long before the technical problem is

identified. To avoid this progression, TRIMS operates as a process-oriented tool based on a solid Systems Engineering approach. Process analysis and monitoring provide the earliest possible indication of potential problems. Early identification provides the time necessary to apply corrective actions, thereby preventing problems and mitigating their impact. TRIMS is extremely user-friendly and tailorable. This tool identifies areas of risk; tracks program goals and responsibilities; and can generate a variety of reports to meet the user's needs.

The **BMP Database** provides experience as a unique, one-of-a-kind resource. This database contains more than 2,500 best practices that have been verified and documented by an independent team of experts during BMP surveys. BMP publishes its findings in survey reports and provides the user with basic background, process descriptions, metrics and lessons learned, and a Point of Contact for further information. The BMP Database features a searching capability so users can locate specific topics by typing in keywords. Users can either view the results on screen or print them as individual abstracts, a

single report, or a series of reports. The database can also be downloaded, run on-line, or purchased on CD-ROM from the BMP Center of Excellence. The BMP Database continues to grow as new surveys are completed. Additionally, the database is reviewed every other year by a BMP core team of experts to ensure the information remains current.

For additional information on PMWS, please contact the Help Desk at (301) 403-8179, or visit the BMP web site at <http://www.bmpcoe.org>.



# Appendix E

## ***Best Manufacturing Practices Satellite Centers***

---

There are currently nine Best Manufacturing Practices (BMP) satellite centers that provide representation for and awareness of the BMP program to regional industry, government and academic institutions. The centers also promote the use of BMP with regional Manufacturing Technology Centers. Regional manufacturers can take advantage of the BMP satellite centers to help resolve problems, as the centers host informative, one-day regional workshops that focus on specific technical issues.

Center representatives also conduct BMP lectures at regional colleges and universities; maintain lists of experts who are potential survey team members; provide team member training; and train regional personnel in the use of BMP resources.

The nine BMP satellite centers include:

### **California**

#### **Chris Matzke**

BMP Satellite Center Manager  
Naval Warfare Assessment Division  
Code QA-21, P.O. Box 5000  
Corona, CA 91718-5000  
(909) 273-4992  
FAX: (909) 273-4123  
matzkecj@corona.navy.mil

### **District of Columbia**

#### **Chris Weller**

BMP Satellite Center Manager  
U.S. Department of Commerce  
14th Street & Constitution Avenue, NW  
Room 3876 BXA  
Washington, DC 20230  
(202) 482-8236/3795  
FAX: (202) 482-5650  
cweller@bxa.doc.gov

### **Illinois**

#### **Thomas Clark**

BMP Satellite Center Manager  
Rock Valley College  
3301 North Mulford Road  
Rockford, IL 61114  
(815) 654-5515  
FAX: (815) 654-4459  
adme3tc@rvc.cc.il.us

### **Iowa**

#### **Bruce Coney**

Program Manager  
Iowa Procurement Outreach Center  
2273 Howe Hall, Suite 2617  
Ames, IA 50011  
(515) 294-4461  
FAX: (515) 294-4483  
bruce.coney@ciras.iastate.edu

### **Louisiana**

#### **Al Knecht**

Director  
Maritime Environmental Resources & Information  
Center  
Gulf Coast Region Maritime Technology Center  
University of New Orleans  
810 Engineering Building  
New Orleans, LA 70148  
(504) 626-8918 / (504) 280-6271  
FAX: (504) 727-4121  
atk@neosoft.com

### **Michigan**

#### **Jack Pokrzywa**

SAE/BMP Satellite Center Manager  
755 W. Big Beaver Road, Suite 1600  
Troy, MI 48084  
(248) 273-2460  
FAX: (248) 273-2494  
jackp@sae.org

---

**Michigan****Roy T. Trent**

SAE/BMP Automotive Manufacturing Initiative  
Manager  
755 W. Big Beaver Road, Suite 1600  
Troy, MI 48084  
(248) 273-2455  
FAX: (248) 273-2494  
boulder@ees.eesc.com

**Ohio****Karen Malone**

BMP Satellite Center Manager  
Edison Welding Institute  
1250 Arthur E. Adams Drive  
Columbus, Ohio 43221-3585  
(614) 688-5111  
FAX: (614) 688-5001  
karen\_malone@ewi.org

**Pennsylvania****Sherrie Snyder**

BMP Satellite Center Manager  
MANTEC, Inc.  
P.O. Box 5046  
York, PA 17405  
(717) 843-5054, ext. 225  
FAX: (717) 854-0087  
snyderss@mantec.org

**Tennessee****Tammy Graham**

BMP Satellite Center Manager  
Lockheed Martin Energy Systems  
P.O. Box 2009, Bldg. 9737  
M/S 8091  
Oak Ridge, TN 37831-8091  
(865) 576-5532  
FAX: (865) 574-2000  
grahamtb@ornl.gov

---

# Appendix F

## *Navy Manufacturing Technology Centers of Excellence*

---

The Navy Manufacturing Sciences and Technology Program established the following Centers of Excellence (COEs) to provide focal points for the development and technology transfer of new manufacturing processes and equipment in a cooperative environment with industry, academia, and Navy centers and laboratories. These COEs are consortium-structured for industry, academia, and government involvement in developing and implementing technologies. Each COE has a designated point of contact listed below with the individual COE information.

### **Best Manufacturing Practices Center of Excellence**

The Best Manufacturing Practices Center of Excellence (BMPCOE) provides a national resource to identify and promote exemplary manufacturing and business practices and to disseminate this information to the U.S. Industrial Base. The BMPCOE was established by the Navy's BMP Program, The Department of Commerce, and the University of Maryland at College Park, Maryland. The BMPCOE improves the use of existing technology, promotes the introduction of improved technologies, and provides non-competitive means to address common problems, and has become a significant factor in countering foreign competition.

Point of Contact:  
Anne Marie T. SuPrise, Ph.D.  
Best Manufacturing Practices Center of Excellence  
4321 Hartwick Road  
Suite 400  
College Park, MD 20740  
(301) 403-8100  
FAX: (301) 403-8180  
annemari@bmpcoe.org

### **Center of Excellence for Composites Manufacturing Technology**

The Center of Excellence for Composites Manufacturing Technology (CECMT) provides a national resource for the development and dissemination of composites manufacturing technology to defense contractors and subcontractors. The CECMT is managed by the Great Lakes Composites Consortium and represents a collaborative effort among industry, academia, and government to develop, evaluate, demonstrate, and test composites manufacturing technologies. The technical work is problem-driven to reflect current and future Navy needs in the composites industrial community.

Point of Contact:  
Mr. James Ray  
Center of Excellence for Composites Manufacturing Technology  
c/o GLCC, Inc.  
103 Trade Zone Drive  
Suite 26C  
West Columbia, SC 29170  
(803) 822-3708  
FAX: (803) 822-3710  
jrglcc@glcc.org

### **Electronics Manufacturing Productivity Facility**

The Electronics Manufacturing Productivity Facility (EMPF) identifies, develops, and transfers innovative electronics manufacturing processes to domestic firms in support of the manufacture of affordable military systems. The EMPF operates as a consortium comprised of industry, university, and government participants, led by the American Competitiveness Institute under a Cooperative Agreement with the Navy.

Point of Contact:  
Mr. Alan Criswell  
Electronics Manufacturing Productivity Facility  
One International Plaza  
Suite 600  
Philadelphia, PA 19113  
(610) 362-1200  
FAX: (610) 362-1290  
criswell@aci-corp.org

### **National Center for Excellence in Metalworking Technology**

The National Center for Excellence in Metalworking Technology (NCEMT) provides a national center for the development, dissemination, and implementation of advanced technologies for metalworking products and processes. The NCEMT, operated by Concurrent Technologies Corporation, helps the Navy and defense contractors improve manufacturing productivity and part reliability through development, deployment, training, and education for advanced metalworking technologies.

---

Point of Contact:  
Mr. Richard Henry  
National Center for Excellence in Metalworking  
Technology  
c/o Concurrent Technologies Corporation  
100 CTC Drive  
Johnstown, PA 15904-3374  
(814) 269-2532  
FAX: (814) 269-2501  
henry@ctc.com

### **Navy Joining Center**

The Navy Joining Center (NJC) is operated by the Edison Welding Institute and provides a national resource for the development of materials joining expertise and the deployment of emerging manufacturing technologies to Navy contractors, subcontractors, and other activities. The NJC works with the Navy to determine and evaluate joining technology requirements and conduct technology development and deployment projects to address these issues.

Point of Contact:  
Mr. David P. Edmonds  
Navy Joining Center  
1250 Arthur E. Adams Drive  
Columbus, OH 43221-3585  
(614) 688-5096  
FAX: (614) 688-5001  
dave\_edmonds@ewi.org

### **Energetics Manufacturing Technology Center**

The Energetics Manufacturing Technology Center (EMTC) addresses unique manufacturing processes and problems of the energetics industrial base to ensure the availability of affordable, quality, and safe energetics. The focus of the EMTC is on process technology with a goal of reducing manufacturing costs while improving product quality and reliability. The EMTC also maintains a goal of development and implementation of environmentally benign energetics manufacturing processes.

Point of Contact:  
Mr. John Brough  
Energetics Manufacturing Technology Center  
Indian Head Division  
Naval Surface Warfare Center  
101 Strauss Avenue  
Building D326, Room 227  
Indian Head, MD 20640-5035  
(301) 744-4417  
DSN: 354-4417  
FAX: (301) 744-4187  
mt@command.ih.navy.mil

### **Institute for Manufacturing and Sustainment Technologies**

The Institute for Manufacturing and Sustainment Technologies (iMAST), was formerly known as Manufacturing Science and Advanced Materials Processing Institute. Located at the Pennsylvania State University's Applied Research Laboratory, the primary objective of iMAST is to address challenges relative to Navy and Marine Corps weapon system platforms in the areas of mechanical drive transmission technologies, materials science technologies, high energy processing technologies, and repair technology.

Point of Contact:  
Mr. Bob Cook  
Institute for Manufacturing and Sustainment  
Technologies  
ARL Penn State  
P.O. Box 30  
State College, PA 16804-0030  
(814) 863-3880  
FAX: (814) 863-1183  
rbc5@psu.edu

### **Gulf Coast Region Maritime Technology Center**

The Gulf Coast Region Maritime Technology Center (GCRMTC) is located at the University of New Orleans and focuses primarily on product developments in support of the U.S. shipbuilding industry. A sister site at Lamar University in Orange, Texas focuses on process improvements.

Point of Contact:  
Dr. John Crisp, P.E.  
Gulf Coast Region Maritime Technology Center  
University of New Orleans  
College of Engineering  
Room EN-212  
New Orleans, LA 70148  
(504) 280-5586  
FAX: (504) 280-3898  
jncme@uno.edu



# Appendix G

## Completed Surveys

---

As of this publication, 121 surveys have been conducted and published by BMP at the companies listed below. Copies of older survey reports may be obtained through DTIC or by accessing the BMP web site. Requests for copies of recent survey reports or inquiries regarding BMP may be directed to:

Best Manufacturing Practices Program  
4321 Hartwick Rd., Suite 400  
College Park, MD 20740  
Attn: Anne Marie T. SuPrise, Ph.D., Acting Director  
Telephone: 1-800-789-4267  
FAX: (301) 403-8180  
annemari@bmpcoe.org

<b>1985</b>	Litton Guidance & Control Systems Division - Woodland Hills, CA
<b>1986</b>	Honeywell, Incorporated Undersea Systems Division - Hopkins, MN (now Alliant TechSystems, Inc.) Texas Instruments Defense Systems & Electronics Group - Lewisville, TX General Dynamics Pomona Division - Pomona, CA Harris Corporation Government Support Systems Division - Syosset, NY IBM Corporation Federal Systems Division - Owego, NY Control Data Corporation Government Systems Division - Minneapolis, MN
<b>1987</b>	Hughes Aircraft Company Radar Systems Group - Los Angeles, CA ITT Avionics Division - Clifton, NJ Rockwell International Corporation Collins Defense Communications - Cedar Rapids, IA UNISYS Computer Systems Division - St. Paul, MN
<b>1988</b>	Motorola Government Electronics Group - Scottsdale, AZ General Dynamics Fort Worth Division - Fort Worth, TX Texas Instruments Defense Systems & Electronics Group - Dallas, TX Hughes Aircraft Company Missile Systems Group - Tucson, AZ Bell Helicopter Textron, Inc. - Fort Worth, TX Litton Data Systems Division - Van Nuys, CA GTE C <sup>3</sup> Systems Sector - Needham Heights, MA
<b>1989</b>	McDonnell-Douglas Corporation McDonnell Aircraft Company - St. Louis, MO Northrop Corporation Aircraft Division - Hawthorne, CA Litton Applied Technology Division - San Jose, CA Litton Amecom Division - College Park, MD Standard Industries - LaMirada, CA Engineered Circuit Research, Incorporated - Milpitas, CA Teledyne Industries Incorporated Electronics Division - Newbury Park, CA Lockheed Aeronautical Systems Company - Marietta, GA Lockheed Missile Systems Division - Sunnyvale, CA (now Lockheed Martin Missiles and Space) Westinghouse Electronic Systems Group - Baltimore, MD (now Northrop Grumman Corporation) General Electric Naval & Drive Turbine Systems - Fitchburg, MA Rockwell Autonetics Electronics Systems - Anaheim, CA (now Boeing North American A&MSD) TRICOR Systems, Incorporated - Elgin, IL
<b>1990</b>	Hughes Aircraft Company Ground Systems Group - Fullerton, CA TRW Military Electronics and Avionics Division - San Diego, CA MechTronics of Arizona, Inc. - Phoenix, AZ Boeing Aerospace & Electronics - Corinth, TX Technology Matrix Consortium - Traverse City, MI Textron Lycoming - Stratford, CT

<b>1991</b>	<i>Resurvey of Litton Guidance &amp; Control Systems Division</i> - Woodland Hills, CA Norden Systems, Inc. - Norwalk, CT (now Northrop Grumman Norden Systems) Naval Avionics Center - Indianapolis, IN United Electric Controls - Watertown, MA Kurt Manufacturing Co. - Minneapolis, MN MagneTek Defense Systems - Anaheim, CA (now Power Paragon, Inc.) Raytheon Missile Systems Division - Andover, MA AT&T Federal Systems Advanced Technologies and AT&T Bell Laboratories - Greensboro, NC and Whippany, NJ <i>Resurvey of Texas Instruments Defense Systems &amp; Electronics Group</i> - Lewisville, TX
<b>1992</b>	Tandem Computers - Cupertino, CA Charleston Naval Shipyard - Charleston, SC Conax Florida Corporation - St. Petersburg, FL Texas Instruments Semiconductor Group Military Products - Midland, TX Hewlett-Packard Palo Alto Fabrication Center - Palo Alto, CA Watervliet U.S. Army Arsenal - Watervliet, NY Digital Equipment Company Enclosures Business - Westfield, MA and Maynard, MA Computing Devices International - Minneapolis, MN (now General Dynamics Information Systems) <i>(Resurvey of Control Data Corporation Government Systems Division)</i> Naval Aviation Depot Naval Air Station - Pensacola, FL
<b>1993</b>	NASA Marshall Space Flight Center - Huntsville, AL Naval Aviation Depot Naval Air Station - Jacksonville, FL Department of Energy Oak Ridge Facilities (Operated by Martin Marietta Energy Systems, Inc.) - Oak Ridge, TN McDonnell Douglas Aerospace - Huntington Beach, CA (now Boeing Space Systems) Crane Division Naval Surface Warfare Center - Crane, IN and Louisville, KY Philadelphia Naval Shipyard - Philadelphia, PA R. J. Reynolds Tobacco Company - Winston-Salem, NC Crystal Gateway Marriott Hotel - Arlington, VA Hamilton Standard Electronic Manufacturing Facility - Farmington, CT Alpha Industries, Inc. - Methuen, MA
<b>1994</b>	Harris Semiconductor - Palm Bay, FL (now Intersil Corporation) United Defense, L.P. Ground Systems Division - San Jose, CA Naval Undersea Warfare Center Division Keyport - Keyport, WA Mason & Hanger - Silas Mason Co., Inc. - Middletown, IA Kaiser Electronics - San Jose, CA U.S. Army Combat Systems Test Activity - Aberdeen, MD (now Aberdeen Test Center) Stafford County Public Schools - Stafford County, VA
<b>1995</b>	Sandia National Laboratories - Albuquerque, NM Rockwell Collins Avionics & Communications Division - Cedar Rapids, IA (now Rockwell Collins, Inc.) <i>(Resurvey of Rockwell International Corporation Collins Defense Communications)</i> Lockheed Martin Electronics & Missiles - Orlando, FL McDonnell Douglas Aerospace (St. Louis) - St. Louis, MO (now Boeing Aircraft and Missiles) <i>(Resurvey of McDonnell-Douglas Corporation McDonnell Aircraft Company)</i> Dayton Parts, Inc. - Harrisburg, PA Wainwright Industries - St. Peters, MO Lockheed Martin Tactical Aircraft Systems - Fort Worth, TX <i>(Resurvey of General Dynamics Fort Worth Division)</i> Lockheed Martin Government Electronic Systems - Moorestown, NJ Sacramento Manufacturing and Services Division - Sacramento, CA JLG Industries, Inc. - McConnellsburg, PA
<b>1996</b>	City of Chattanooga - Chattanooga, TN Mason & Hanger Corporation - Pantex Plant - Amarillo, TX Nascote Industries, Inc. - Nashville, IL Weirton Steel Corporation - Weirton, WV NASA Kennedy Space Center - Cape Canaveral, FL <i>Resurvey of Department of Energy, Oak Ridge Operations</i> - Oak Ridge, TN

---

<b>1997</b>	Headquarters, U.S. Army Industrial Operations Command - Rock Island, IL
	SAE International and Performance Review Institute - Warrendale, PA
	Polaroid Corporation - Waltham, MA
	Cincinnati Milacron, Inc. - Cincinnati, OH
	Lawrence Livermore National Laboratory - Livermore, CA
	Sharretts Plating Company, Inc. - Emigsville, PA
	Thermacore, Inc. - Lancaster, PA
	Rock Island Arsenal - Rock Island, IL
	Northrop Grumman Corporation - El Segundo, CA
	<i>(Resurvey of Northrop Corporation Aircraft Division)</i>
	Letterkenny Army Depot - Chambersburg, PA
	Elizabethtown College - Elizabethtown, PA
	Tooele Army Depot - Tooele, UT
<b>1998</b>	United Electric Controls - Watertown, MA
	Strite Industries Limited - Cambridge, Ontario, Canada
	Northrop Grumman Corporation - El Segundo, CA
	Corpus Christi Army Depot - Corpus Christi, TX
	Anniston Army Depot - Anniston, AL
	Naval Air Warfare Center, Lakehurst - Lakehurst, NJ
	Sierra Army Depot - Herlong, CA
	ITT Industries Aerospace/Communications Division - Fort Wayne, IN
	Raytheon Missile Systems Company - Tucson, AZ
	Naval Aviation Depot North Island - San Diego, CA
	<i>U.S.S. Carl Vinson (CVN-70)</i> - Commander Naval Air Force, U.S. Pacific Fleet
	Tobyhanna Army Depot - Tobyhanna, PA
<b>1999</b>	Wilton Armature - Mount Joy, PA
	Applied Research Laboratory, Pennsylvania State University - State College, PA
	Electric Boat Corporation, Quonset Point Facility - North Kingstown, RI
	<i>Resurvey of NASA Marshall Space Flight Center</i> - Huntsville, AL
	Orenda Turbines, Division of Magellan Aerospace Corporation - Mississauga, Ontario, Canada
<b>2000</b>	Northrop Grumman, Defensive Systems Division - Rolling Meadows, IL
	Crane Army Ammunition Activity - Crane, IN
	Naval Sea Logistics Center, Detachment Portsmouth - Portsmouth, NH

---